



MaP Doctoral School | Strength & Durability of Materials

Material Strength & Durability Symposium

19-20 May 2022

ETH Zentrum, MM C 78.1 (Alumni Pavillon)

Strength and durability are key factors which determine the potential and limitations of materials applied in all disciplines of engineering. For this reason, the accurate prediction of material strength and toughness, the full control over material degradation due to environmental and long-term service conditions, and the optimal design of micro- and mesostructures for increased material performance and reliability are crucial challenges in the development of new technologies.

The **Material Strength & Durability Symposium**, organised by the 'Strength & Durability' track of the MaP Doctoral School at ETH Zurich, aims to bring together experts in material strength and durability covering both experimental and modeling/computational research, and to discuss recent advances in our understanding of these material properties.

Co-Hosts: Laura De Lorenzis (D-MAVT) & David Kammer (D-BAUG)

www.doctoral-school.ethz.ch

MaP Doctoral School | Strength & Durability of Materials

Material Strength & Durability Symposium

19-20 May 2022

ETH Zentrum, MM C 78.1 (Alumni Pavillon)

19 May 2022 (Thursday)

- 08.30** **Registration & Welcome Coffee**
- 09.00** **Welcome & Introduction**
- 09.05** **Norman A Fleck (University of Cambridge)** | The Failure of Adhesive Joints: Mechanisms Ranging from Ductile Fracture to Corrosion by Diffusion-Controlled Growth
- 10.05** **Coffee Break**
- 10.30** **Hong S. Wong (Imperial College London)** | Enhancing the Durability of Concrete: Challenges, Opportunities & Recent Advances
- 11.30** **Lunch Break (Speakers only)**
- 13.00** **Krishnaswamy Ravi-Chandar (The University of Texas at Austin)** | Exploration of Ductile Failure in an Aluminum Alloy through X-Ray CT Scan & Microscopy
- 14.00** **Coffee Break**
- 14.20** **Jay Fineberg (The Hebrew University of Jerusalem)** | Fracture Mechanics beyond LEFM
- 15.20** **Coffee Break**
- 15.40** **Michael Ortiz (Caltech)** | Strain-Gradient Microplasticity & Ductile Fracture of Metals
- 16.40** **Pitch Session**
Tatiana Akhmetshina (D-MATL) | **Thomas Beerli (D-MAVT)** | **Miguel Castellano (D-BAUG)** | **Zhikang Deng (D-BAUG)** | **Fabio Enrico Furcas (D-BAUG)** | **Lingzhen Li (D-BAUG)** | **Luca Michel (D-BAUG)** | **Sindhu Nagaraja (D-MAVT)** | **Francesco Vicentini (D-MAVT)**
- 17.40** **Wrap-Up**
- 17.45** **End of Symposium Day 1**
- 18.00** **Dinner (Speakers + Co-Chairs and Doctoral Students of Track)**

MaP Doctoral School | Strength & Durability of Materials

Material Strength & Durability Symposium

19-20 May 2022

ETH Zentrum, MM C 78.1 (Alumni Pavillon)

20 May 2022 (Friday)

- 09.00** **Welcome & Introduction**
- 09.05** **Anna Pandolfi (Politecnico di Milano)** | Eigerosion Fracture Using Finite Element & Meshfree Approximation Schemes
- 10.05** **Coffee Break**
- 10.30** **Jean-François Molinari (EPFL)** | Numerical Modeling of Adhesive Wear Across Scales
- 11.30** **Closing Remarks**
- 12.30** **Lunch Break (Speakers only)**